

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope, with sufficient postage, addressed to: Commissioner for Patents, Washington, D.C. 20231, on

July 18, 2001

Date of Deposit

Thomas J. Wrona, Ph.D., Reg. No. 44,410

Name of Applicant, Assignee or  
Registered Representative

Signature

7/18/01

Date of Signature

**RECEIVED**

JUL 23 2001

TECH CENTER 1600 2900

Our Case No.: 10114-6

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Peng G. Wang et al.

Serial No.: 09/758,525

Filing Date: January 10, 2001

For: GLYCOCONJUGATE SYNTHESIS USING A  
PATHWAY-ENGINEERED ORGANISM

Examiner: To Be Assigned

Group Art Unit No.: 1633

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed below and on the attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

RECEIVED

JUL 23 2001

The references now cited are the following:

TECH CENTER 1600 2900

## U.S. PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
5,180,674	1/19/93	Roth	435/288	4/11/91
5,288,637	2/22/94	Roth	435/288	10/02/92
5,583,042	12/10/96	Roth	435/288	3/22/94
5,879,912	3/09/99	Roth	435/72	6/17/96
6,030,815	2/29/00	DeFrees et al.	435/97	4/10/96

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY
EP 0 861 902 A1	9/02/98	EPO ✓
EP 0 870 841 A1	10/14/98	EPO ✓
WO 92/14827	9/03/92	WIPO ✓
WO 97/33974	9/18/97	WIPO ✓
WO 98/11247	3/19/98	WIPO ✓
WO 98/12343	3/26/98	WIPO ✓

## OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

Wong et al., "Enzyme-Catalyzed Synthesis of N-Acetylglucosamine with in Situ Regeneration of Uridine 5'-Diphosphate Glucose and Uridine 5'-Diphosphate Galactose", *J. Org. Chem.*, Vol. 47, 1982, pp 5416-5418

Joachim Thiem et al., "Synthesis of Galactose-Terminated Oligosaccharides by Use of Galactosyltransferase", *Synthesis*, 1992, pp 141-145

Naoki Asano et al. "Enzymic synthesis of  $\alpha$ - and  $\beta$ -D-glucosides of 1-deoxynojirimycin and their glycosidase inhibitory activities", *Carbohydrate Research*, Vol. 258, 1994, pp 255-266

Andre Lubineau et al. "Porcine liver (2 $\rightarrow$ 3)- $\alpha$ -sialyltransferase: substrate specificity studies and application of the immobilized enzyme to the synthesis of various sialylated oligosaccharide sequences", *Carbohydrate Research*, Vol. 300, 1997, pp 161-167

Christelle Breton et al. "Sequence-Function Relationships of Prokaryotic and Eukaryotic Galactosyltransferases", *J. Biochem.*, Vol. 123, 1998, pp 1000-1009

Satoshi Koizumi et al., "Large-scale production of UDP-galactose and globotriose by coupling metabolically engineered bacteria", *Nature Biotechnology*, Vol. 16, 1998, pp 847-850

Xi Chen et al., "Carbohydrates on transplantation", *Chemical Biology*, 1999, pp 650-658

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## OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

Tetsuo Endo et al., "Large-scale production of *N*-acetyllactosamine through bacterial coupling", *Carbohydrate Research*, Vol. 316, 1999, pp 179-183

Brenda Lougheed et al., "Glycosyl Fluorides Can Function as Substrates for Nucleotide Phosphosugar-dependent Glycosyltransferases", *The Journal of Biological Chemistry*, Vol. 274, No. 53, 1999, pp 37717-37722

Leigh Revers et al., "Development of recombinant, immobilized  $\beta$ -1, 4-mannosyltransferase for use as an efficient tool in the chemoenzymatic synthesis of *N*-linked oligosaccharides", *Biochimica et Biophysica Acta*, Vol. 1428, 1999, pp 88-98

Xi Chen, "Changing the Donor Cofactor of Bovine  $\alpha$ 1,3-Galactosyltransferase by Fusion with UDP-galactose 4-Epimerase", *The Journal of Biological Chemistry*, Vol. 275, No. 41, 2000, pp 31594-31600

Kiyotaka Fujita et al., "Synthesis of Neoglycoenzymes with Homogeneous N-Linked Oligosaccharides Using Immobilized Endo- $\beta$ -*N*-acetylglucosaminidase A", *Biochemical and Biophysical Research Communications*, Vol. 267, 2000, pp 134-138

T. Endo et al., "Large-scale production of CMP-NeuAc and sialylated oligosaccharides through bacterial coupling", *Appl. Microbiol Biotechnol*, Vol. 53, 2000 pp 257-261

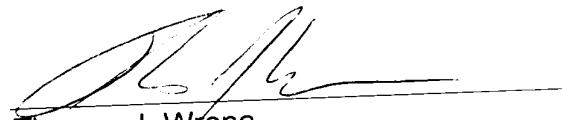
Kazukiko Tabata et al., "Production of UDP-*N*-acetylglucosamine by coupling metabolically engineered bacteria", *Biotechnology Letters*, Vol. 22, 2000, pp 479-483

In accordance with 37 C.F.R. § 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

This Information Disclosure Statement is being filed prior to the receipt of the first Official Action reflecting an examination on the merits and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with filing of this Information Disclosure Statement. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Brinks Hofer Gilson & Lione Deposit Account No. 23-1925.

Applicants respectfully request that the listed documents be made of record in  
the present case.

Respectfully submitted,



Thomas J. Wrona  
Registration No. 44,410  
Agent for Applicants

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FORM PTO-1449

**LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT**

(use several sheets if necessary)

SERIAL NO.

09/758,525

CASE NO.

10114/6

FILING DATE

January 10, 2001

GROUP ART UNIT

1633

APPLICANT(S): Peng G. Wang et al.

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
A1	5,180,674	1/19/93	Roth	435/288	4/11/91
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A3	5,583,042	12/10/96	Roth	435/288	3/22/94
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A8	WO 92/14827	9/03/92	WIPO		
A9	WO 97/33974	9/18/97	WIPO		
A10	WO 98/11247	3/19/98	WIPO	in Japanese	Abstract
A11	WO 98/12343	3/26/98	WIPO	in Japanese	Abstract

## EXAMINER INITIAL

## OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

A12	Wong et al., "Enzyme-Catalyzed Synthesis of N-Acetyllactosamine with in Situ Regeneration of Uridine 5-Diphosphate Glucose and Uridine 5-Diphosphate Galactose", J. Org. Chem., Vol. 47, 1982, pp 5416-5418
A13	Joachim Thiem et al., "Synthesis of Galactose-Terminated Oligosaccharides by Use of Galactosyltransferase", Synthesis, 1992, pp 141-145
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A18	Xi Chen et al., "Carbohydrates on transplantation", Chemical Biology, 1999, pp 650-658
A19	Tetsuo Endo et al., "Large-scale production of N-acetyllactosamine through bacterial coupling", Carbohydrate Research, Vol. 316, 1999, pp 179-183

## EXAMINER

## DATE CONSIDERED

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FORM PTO-1449	JUL 20 2001	SERIAL NO.	09/758,525	CASE NO.	10114/6
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APPLICANT(S): Peng G. Wang et al.				RECEIVED JUL 9 2001	

EXAMINER INITIAL	OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)				
	A20	Brenda Lougheed et al., "Glycosyl Flourides Can Function as Substrates for Nucleotide Phosphosugar-dependent Glycosyltransferases", The Journal of Biological Chemistry, Vol. 274, No. 53, 1999, pp 37717-37722			TECH CENTER 1600 2900
	A21	Leigh Revers et al., "Development of recombinant, immobilized $\beta$ -1, 4-mannosyltransferase for use as an efficient tool in the chemoenymatic synthesis of N-linked oligosaccharides", Biochimica et Biophysica Acta, Vol. 1428, 1999, pp 88-98			
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	A25	Kazukiko Tabata et al., "Production of UDP-N-acetylglucosamine by coupling metabolically engineered bacteria", Biotechnology Letters, Vol. 22, 2000, pp 479-483			

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